

WHAT IS CLAIMED IS:

1. A wireless radio frequency (“RF”) modem constructed to cooperatively operate with an external message split controller, said external message
5 split controller operative to split a message into a plurality of message fragments according to one or more predetermined criteria, and to include with each said message fragment an identifier of where said fragment was located within said message, to enable each said message fragment to be transmitted to said RF modem as a separate electromagnetic signal via a separate selected transmitting source over a
10 corresponding selected radio frequency, said RF modem comprising:

an RF front end operative, for each said separate electromagnetic signal, to receive the signal, to detect the radio frequency over which the signal was transmitted and to downconvert the signal to generate a corresponding baseband signal;

15 a baseband processing unit coupled to said RF front end and operative to detect and decode each said baseband signal generated by said RF front end to generate each said corresponding transmitted message fragment;

a central processing unit (“CPU”) coupled to said RF front end and to said baseband processing unit, said CPU operative to detect said identifiers; and

20 a message fragment combining unit coupled to said CPU for combining said message fragments as a function of said identifiers to generate the original message.

25 2. The RF modem of Claim 1, said RF front end comprising an analog to digital converter coupled to a plurality of bandpass filters, said bandpass filters connected in parallel, wherein each said bandpass filter is operative to detect one said selected radio frequency.

3. The RF modem of Claim 1, further comprising a modem message split controller coupled to said CPU, wherein:

30 said modem message split controller is operative to split a message intended for a receiving unit into a plurality of message fragments according to one or more predetermined criteria and to include with each said message fragment an identifier of where said fragment was located within said message to enable each said message

fragment to be transmitted to said receiving unit as a separate electromagnetic signal via a separate selected transmitting source over a corresponding selected radio frequency;

5 said baseband processing unit is further operative to encode each said message fragment to generate a corresponding baseband signal; and

 said RF front end is further operative to upconvert each said baseband signal received from said baseband processing unit to generate a corresponding separate electromagnetic signal for transmission across a corresponding selected transmitting source.

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4. The RF modem of Claim 1, wherein a proxy server connected to the Internet comprises said external message split controller.

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5. The RF modem of Claim 1, wherein a transmitter controller for a data communications network comprises said external message split controller.

6. The RF modem of Claim 1, wherein a network controller for a data communications network comprises said external message split controller.

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7. The RF modem of Claim 1, wherein said modem components are software configurable.

8. A method for transmitting a message to a single receiving unit over a plurality of independent transmitting sources, said method comprising the steps of:

25 (a) selecting at least two available transmitting sources for transmitting a message to an intended receiving unit and selecting a corresponding radio frequency for each said selected transmitting source;

 (b) splitting said message into a plurality of message fragments according to at least one predetermined criteria and including with each said message fragment
30 an identifier of where said fragment was located within said message;

(c) causing each said message fragment to be transmitted to said receiving unit as a separate electromagnetic signal via a separate said selected transmitting source over the corresponding selected radio frequency;

5 (d) receiving, in said receiving unit, each said separate electromagnetic signal and extracting the corresponding message fragment; and

(e) combining, in said receiving unit, said message fragments as a function of said identifiers to generate the original message.

9. The method of Claim 8, wherein the same air interface is used by each
10 said selected transmitting source to transmit said message fragments.

10. The method of Claim 8, wherein at least two different air interfaces are used by said selected transmitting sources to transmit said message fragments.

15 11 The method of Claim 8, wherein one said predetermined criteria is Quality of Service.

12. The method of Claim 8, wherein step (b) is performed by a cellular telephone comprising an RF modem.

20 13. The method of Claim 8, wherein step (b) is performed by a proxy server connected to the Internet.

25 14. The method of Claim 8, wherein step (b) is performed by a network controller for a data communications network.

15. The method of Claim 8, wherein step (b) is performed by a transmitter controller for a data communications network.

30 16. The method of Claim 8, wherein said identifiers are generated by Transmission Control Protocol/Internet Protocol rules.

17. The method of Claim 8, wherein the receiving unit determines said at least one predetermined criteria.

18. The method of Claim 8, wherein said identifiers are generated and each 5 said message fragment is transmitted according to an interleaving table.

19. A wireless radio frequency (“RF”) modem for receiving messages in a receive mode and for transmitting messages in a transmit mode, said RF modem constructed to cooperatively operate with an external message split controller, said 10 external message split controller operative to split a message into a plurality of message fragments according to one or more predetermined criteria, and to include with each said message fragment an identifier of where said fragment was located within said message, to enable each said message fragment to be transmitted to said RF modem as a separate electromagnetic signal via a separate selected transmitting 15 source over a corresponding selected radio frequency, said RF modem comprising:
an RF front end operative in said receive mode, for each said separate electromagnetic signal, to receive the signal, to detect the radio frequency over which the signal was transmitted and to downconvert the signal to generate a corresponding baseband signal;

20 a baseband processing unit coupled to said RF front end and operative in said receive mode to detect and decode each said baseband signal generated by said RF front end to generate each said corresponding transmitted message fragment;

25 a central processing unit (“CPU”) coupled to said RF front end and to said baseband processing unit, said CPU operative in said receive mode to detect said identifiers; and

a message fragment combining unit coupled to said CPU for combining said message fragments as a function of said identifiers to generate the original message, said RF modem further comprising a modem message split controller coupled to said CPU, wherein:

30 said modem message split controller is operative in said transmit mode to split a message intended for a receiving unit into a plurality of message fragments according to one or more predetermined criteria and to include with each said

message fragment an identifier of where said fragment was located within said message to enable each said message fragment to be transmitted to said receiving unit as a separate electromagnetic signal via a separate selected transmitting source over a corresponding selected radio frequency;

- 5 said baseband processing unit is further operative in said transmit mode to encode each said message fragment to generate a corresponding baseband signal; and
said RF front end is further operative in said transmit mode to upconvert each said baseband signal received from said baseband processing unit to generate a corresponding separate electromagnetic signal for transmission across a
10 corresponding selected transmitting source.

baseband processors connected in parallel, wherein said separate baseband processing units simultaneously encode said message fragments to generate corresponding baseband signals, and said RF front end comprising a plurality of separate RF front ends connected in parallel, each said separate RF front end coupled to a corresponding
15 said separate baseband processing unit to upconvert the baseband signal generated by that baseband processing unit.

20. The modem of Claim 19 wherein said baseband processing unit comprises a plurality of separate baseband processors connected in parallel, wherein
20 said separate baseband processing units simultaneously encode said message fragments in said transmit mode to generate corresponding baseband signals, and said RF front end comprising a baseband multiplexer coupled to said plurality of separate baseband processing units for mixing said plurality of baseband signals into a single baseband signal, said RF front end further comprising an RF module coupled to said
25 multiplexer for upconverting said single baseband signal.

21. The modem of Claim 19 wherein said baseband processing unit comprises a plurality of separate baseband processors connected in parallel, wherein
said separate baseband processing units simultaneously encode said message
30 fragments to generate corresponding baseband signals, and said RF front end comprising a plurality of separate RF front ends connected in parallel, each said

separate RF front end coupled to a corresponding said separate baseband processing unit to upconvert the baseband signal generated by that baseband processing unit.